

WHAT IS CLAIMED IS:

1. A method for relaying signaling tones in a communication signal across a network, comprising the steps of:

pre-detecting said tones;

processing said communication signal to invalidate said tones in response to said tone pre-detection;

forwarding said processed communication signal across said network;

validating said tone; and

forwarding tone-on signals across said network in response to said validation.

2. The method of claim 1 wherein said tones comprise dual tone signals comprising a low frequency tone group and a high frequency tone group.

3. The method of claim 2 wherein the step of processing said communication signal to invalidate said tones comprises filtering said high frequency tone group.

4. The method of claim 1 wherein the step of processing said communication signal to invalidate said tones comprises shifting frequency of said tone.

5. The method of claim 1 wherein the step of processing said communication signal to invalidate said tones comprises adding an additional tone to said incoming signal at a discrete frequency.

6. The method of claim 1 further comprising encoding said processed signal in accordance with an application

1 protocol, wherein said encoded signal is forwarded across said network.

5 7. The method of claim 1 wherein the step of pre-detecting said tones comprises determining a characteristic of said tone and comparing said characteristic to one or more predetermined thresholds, wherein said tone is pre-detected in accordance with said comparison.

10 8. The method of claim 7 wherein the step of determining a characteristic of said tone comprises determining power of said tone.

15 9. The method of claim 7 wherein the step of determining a characteristic of said tone comprises determining frequency of said tone.

20 10. The method of claim 1 wherein the step of validating said tone comprises comparing duration of said tone to a predetermined threshold.

25 11. A tone relay for communicating signaling tones across a network, comprising:

validation logic coupled to a tone detector for pre-detecting tones in an incoming signal;

invalidation logic for processing said incoming signal to invalidate said tones in response to said tone pre-detection; and

30 an encoder for encoding said processed signal in accordance with an applications protocol.

35 12. The tone relay of claim 11 wherein said tones comprise dual tone signals comprising a low frequency tone group and a high frequency tone group.

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13. The tone relay of claim 12 wherein said invalidation logic comprises a band stop filter for filtering said high frequency tone group.

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14. The tone relay of claim 12 wherein said invalidation logic comprises a band stop filter for filtering said low frequency tone group.

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15. The tone relay of claim 11 wherein said validation logic analyzes one or more characteristics of said pre-detected tone to verify tone validity, and wherein a host forwards a tone-on signal across said network in accordance with said tone validation.

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16. The tone relay of claim 15 wherein said validation logic comprises state machine logic for verifying duration of said pre-detected tones, and wherein a host forwards a tone-on signal across said network in accordance with said tone validation.

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17. The tone relay of claim 11 wherein said encoder comprises a voice encoder.

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18. The tone relay of claim 11 wherein said tone invalidation logic comprises a signal generator for adding an additional tone to said incoming signal at a discrete frequency.

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19. A data transmission system, comprising:
a telephony device that outputs a signal; and
a signal processor comprising validation logic coupled to a tone detector for pre-detecting tones in said signal,
invalidation logic for processing said signal to invalidate

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said tones in response to said tone pre-detection, and an
encoder for encoding said processed signal in accordance with
an applications protocol.

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20. The data transmission system of claim 19 wherein
said tones comprise dual tone signals comprising a low
frequency tone group and a high frequency tone group.

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21. The data transmission system of claim 20 wherein
said invalidation logic comprises a band stop filter for
filtering said high frequency tone group.

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22. The data transmission system of claim 20 wherein
said invalidation logic comprises a band stop filter for
filtering said low frequency tone group.

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23. The data transmission system of claim 19 wherein
said validation logic analyzes one or more characteristics of
said pre-detected tone to verify tone validity, and wherein a
host forwards a tone-on signal across said network in
accordance with said tone validation.

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24. The data transmission system of claim 23 wherein
said validation logic comprises state machine logic for
verifying duration of said pre-detected tones, and wherein a
host forwards a tone-on signal across said network in
accordance with said tone validation.

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25. The data transmission system of claim 19 wherein
said encoder comprises a voice encoder.

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26. The data transmission system of claim 25 wherein
said tone invalidation logic comprises a signal generator for

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adding an additional tone to said incoming signal at a discrete frequency.

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27. A tone relay for communicating signaling tones across a network, comprising:

means for pre-detecting tones in an incoming signal;
means for invalidating said tones in response to said tone pre-detection; and
10 means for encoding the incoming signal having invalid tones in accordance with an applications protocol.

28. The tone relay of claim 27 wherein said tones comprise dual tone signals comprising a low frequency tone group and a high frequency tone group.
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29. The tone relay of claim 28 wherein said means for invalidating said tones comprise a band stop filter for filtering said high frequency tone group.
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30. The tone relay of claim 28 wherein said means for invalidating said tones comprise a band stop filter for filtering said low frequency tone group.

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31. The tone relay of claim 27 further comprising means for analyzing one or more characteristics of said pre-detected tone to verify tone validity, and means for forwarding a tone-on signal across said network in accordance with said tone validation.

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32. The tone relay of claim 27 wherein said encoding means comprises a voice encoder.

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33. The tone relay of claim 27 wherein said means for invalidating said tones comprises a signal generator for

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adding an additional tone to said incoming signal at a discrete frequency.

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34. The tone relay of claim 27 wherein said means for invalidating said tones comprises means for shifting frequency of said tone.

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35. The tone relay of claim 27 wherein said means for invalidating said tones comprises means for adding an additional tone to said incoming signal at a discrete frequency.

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36. The tone relay of claim 27 further comprising means for buffering said incoming signal and wherein said means for invalidating said tones comprises means for re-transmitting buffered signal in accordance with pre-detection of said tones.

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